

Lesson 3 Flowing LED Lights

Introduction

In this lesson, you will conduct a simple yet interesting experiment – using LEDs to create flowing LED lights. As the name implies, these flowing lights are made up of eight LEDs in a row which successively light up and dim one after another, just like flowing water.

Components

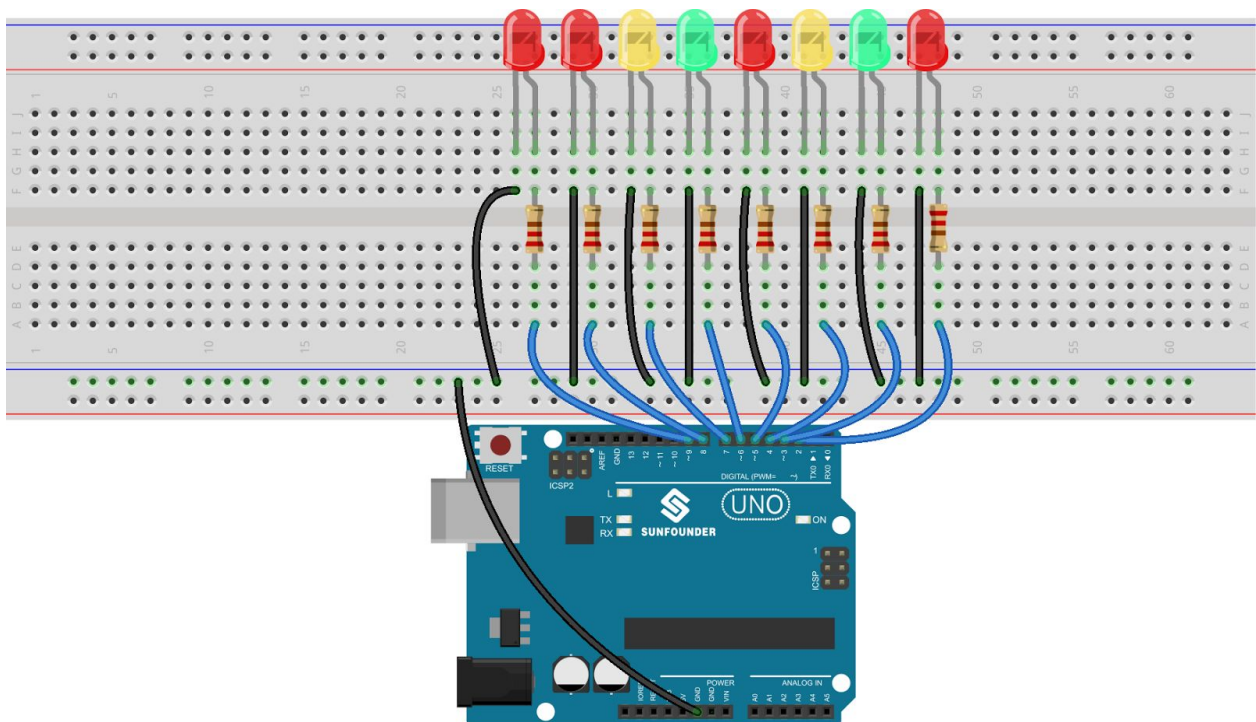
- 1 * Arduino board
- 1 * Breadboard
- Jumper wires
- 8 * LED
- 8 * Resistor (220Ω)
- 1 * USB cable

Principle

The principle of this experiment is simply to turn on eight LEDs in turn.

Experimental Procedures

Step 1: Build the circuit



Step 2: Program

Step 3: Verify the code

Step 4: Upload the sketch to the Arduino Uno board

Now, you should see eight LEDs brighten one by one from left to right, and then dim in turn from right to left. After that, the LEDs will light up from right to left and dim from left to right. This whole process will repeat until the circuit is power off.

Code

```
//Flowing LED Lights
/* Eight LEDs will light up one by one from left to right, and then go out one
by one from right to left.
After that, the LEDs will light up one by one from right to left, and then go
out one by one from left to right.
This process will repeat indefinitely.*/
//Email:support@sunfounder.com
//Website:www.sunfounder.com
//2015.5.7
/*****/
const int lowestPin = 2;//the lowest one attach to
const int highestPin = 9;//the highest one attach to
/*****/
void setup()
{
//set pins 1 through 6 as output
for(int thisPin = lowestPin;thisPin <= highestPin;thisPin++)
{
pinMode(thisPin,OUTPUT); //initialize thisPin as an output
}
}
/*****/
void loop()
{
//iterate over the pins
//turn the led on from lowest to the highest
for(int thisPin = lowestPin;thisPin <= highestPin;thisPin++)
{
digitalWrite(thisPin,HIGH);//turn this led on
delay(100);//wait for 100 microseconds
}
//fade from the highest to the lowest
for(int thisPin = highestPin;thisPin>=lowestPin;thisPin--)
{
digitalWrite(thisPin,LOW);//turn this led off
delay(100);//wait for 100 microseconds
}
for(int thisPin = highestPin;thisPin>=lowestPin;thisPin--)
{
digitalWrite(thisPin,HIGH);//turn this led on
delay(100);//wait for 100 microseconds
}
for(int thisPin = lowestPin;thisPin <= highestPin;thisPin++)
{
digitalWrite(thisPin,LOW);//turn this led off
delay(100);//wait for 100 microseconds
}
}
```